UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

May 1966

PART II–Fishing Information*

Sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists

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Bureau of Commercial Fisheries
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*Part 1 - "Fishery Products Production and Market Data" is issued by the Bureau of Commercial Fisheries, Market News Service, Post Office Building, San Pedro, California

TEMPERATE TUNA FORECAST FOR 1966

This forecast is the sixth of a series of annual predictions for the seasonal albacore and bluefin tuna fisheries off the Pacific Coast prepared by the staff of the Tuna Forecasting Program, Bureau of Commercial Fisheries Tuna Resources Laboratory, La Jolla, California.

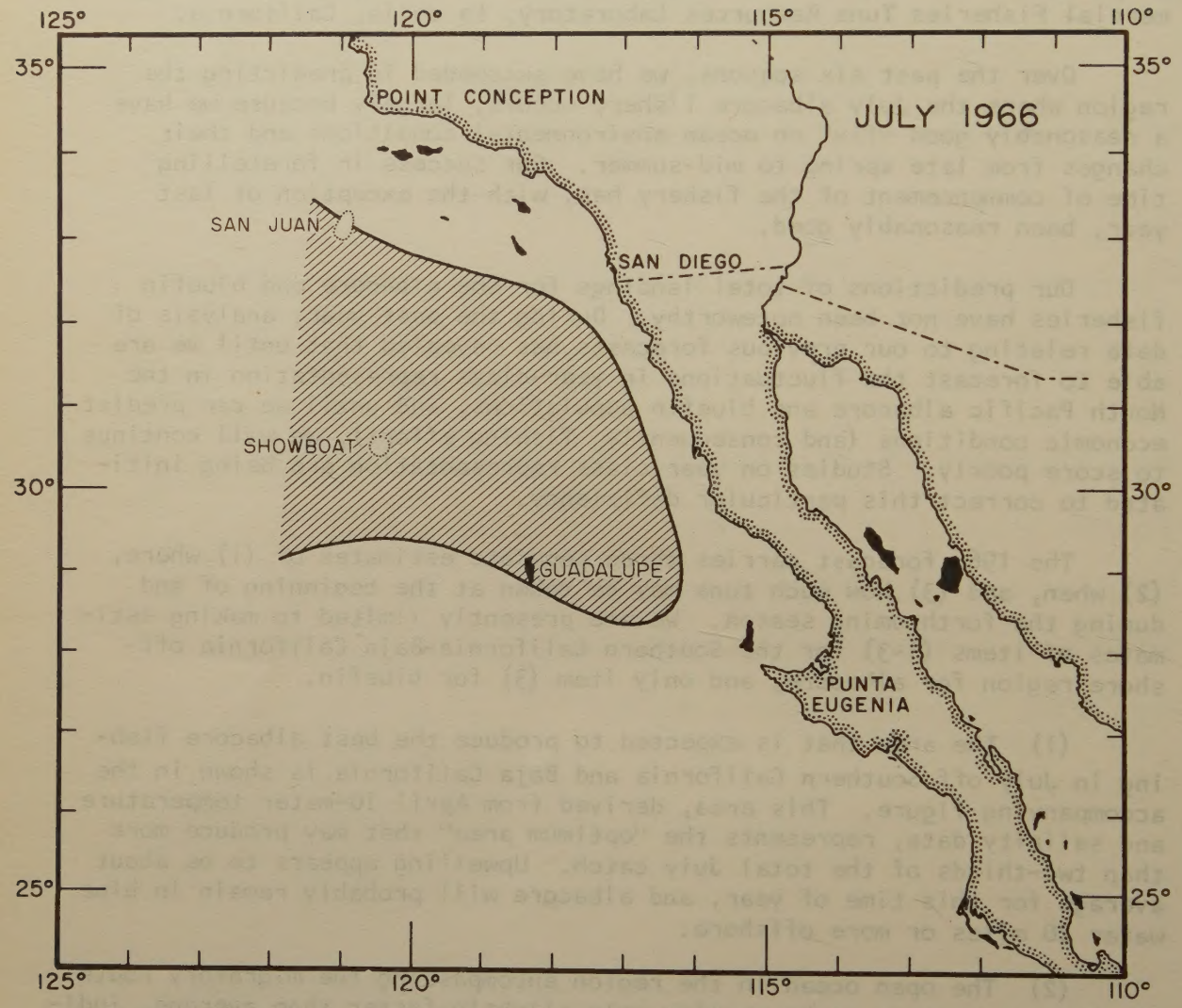
Over the past six seasons, we have succeeded in predicting the region where the July albacore fishery occurs, largely because we have a reasonably good "fix" on ocean environmental conditions and their changes from late spring to mid-summer. Our success in foretelling time of commencement of the fishery has, with the exception of last year, been reasonably good.

Our predictions of total landings for the albacore and bluefin fisheries have not been noteworthy. During the past year, analysis of data relating to our previous forecasts has revealed that until we are able to forecast the fluctuations in year-class representation in the North Pacific albacore and bluefin populations, and until we can predict economic conditions (and consequently, fishing effort), we will continue to score poorly. Studies on year-class representation are being initiated to correct this particular deficiency.

The 1966 forecast carries three separate estimates of (1) where, (2) when, and (3) how much tuna may be taken at the beginning of and during the forthcoming season. We are presently limited to making estimates of items (1-3) for the Southern California-Baja California offshore region for albacore, and only item (3) for bluefin.

(1) The area that is expected to produce the best albacore fishing in July off Southern California and Baja California is shown in the accompanying figure. This area, derived from April 10-meter temperature and salinity data, represents the "optimum area" that may produce more than two-thirds of the total July catch. Upwelling appears to be about average for this time of year, and albacore will probably remain in blue water 20 miles or more offshore.

(2) The open ocean in the region encompassing the migratory route of albacore appears to be warming only slightly faster than average, indicating that the first fish of the shoreward migration will probably appear in the first week of July. (Waters off Oregon and Washington have begun to warm appreciably from mid-April to mid-May. If this trend continues uninterrupted, the Pacific Northwest fishery should get off to a good start late in July.)



Cross-hatched area delineates the region expected to produce about two-thirds of the total July 1966 albacore catch.

(3) We estimate landings in Southern California will be below average. This year, we expect about 8.6 million pounds of albacore to be taken from the region south of the U.S.-Mexico border, and about 6.0 million pounds of bluefin to the north. (Average production for the period 1945-62 has been 14.2 million pounds of albacore and 7.7 million pounds of bluefin.) The estimate for albacore reflects expected average to below-average representation of the 20-30 pound size-class and below-average numbers of the 10-15 pound size-class. Our estimates are based on the poor showing of 10-15 pound fish in California last season (returning as 20-30 pounders this year), as well as the absence of 6-8 pound fish (returning as 10-15 pounders this year). In addition, early season reports from the Japanese spring pole-and-line fishery indicates that the 10-15 pound size-class is averaging less in weight and fewer in number than usual. This situation, along with other factors, appears to have caused the Japanese fishery interests to reduce their original landings forecast from 45,000 to 20,000 metric tons. Poor fishing in May has caused Japanese sources to revise their forecast again. At the present rate of production, the fishery (which normally ends in July) may fall short of this total. Similar conditions are expected to prevail for the California bluefin tuna fishery, because the incoming 10-15 pound size-class was not well represented last season and may fail to return in sufficient numbers this year.

In 1965, our forecast for albacore landings south of the International Border exceeded actual landings by 60 percent, and bluefin landings to the north were overestimated by about 62 percent. Probable causes for these overestimates are a) year-class representation in both fisheries appeared to be poor in the small (10-15 pounds) and intermediate-sized (20-30 pounds) length groups; b) high offshore winds and record cold weather observed in Southern California for late May-early July delayed the onset of both fisheries by as much as 4-6 weeks. Consequently, when the boats did commence fishing, the late start coupled with poor fish population abundance caused landings to fall far short of previous estimates.

Last year, U. S. West Coast albacore landings would have been among the poorest on record if the Pacific Northwest fishery had not materialized. Oregon-Washington landings proved to be the best since 1948, and totaled slightly over 14.0 million pounds. Consequently, the U. S. total came to 37.1 million pounds, or 4.8 million pounds short of the 21-year average.

Our understanding of the normal progression of events during the fishing season has improved in recent years, and we are now better prepared to monitor environmental changes over short time intervals. Significant changes which occur between issuance of this forecast and commencement of the fishery will be reported as they are observed via this publication and the Radio Station WWD daily albacore fishing information broadcasts when they commence on June 1 (see schedule). In addition, as the summer season progresses, we plan to update and project ahead the oceanographic information and catch reports so that fishermen at sea can make maximum use of the data available.

ALBACORE SEASON - 1966 OPERATIONS

Radio Station WWD, licensed to the Bureau of Commercial Fisheries and located on the campus of the Scripps Institution of Oceanography, University of California at San Diego, has resumed its broadcasts of daily albacore fishery information again this year. Broadcasts emanate from WWD twice daily from June 1-October 31 on frequency 4415.8 kc at 1000 PST and 1945 PST. Broadcasts include the latest albacore information obtained from research vessels, cooperating fishing vessels, and contain sea temperatures observed at selected points and other information believed useful to albacore fishermen.

In addition, at the end of each 15-day calendar period, the Tuna Resources Laboratory will code and prepare for transmission (twice daily for two consecutive days) the 15-day sea surface isotherm charts which are routinely mailed to about 600 readers. Map coordinates for the 15-day chart analysis ending on a given date covering the region east of 130° W. longitude and 30°-50° N. latitude will be coded as follows:

Sample Message

"Map coordinates for 15-day chart ending September 15, 1965.
First three numbers are latitude in degrees and tenths.
Last four numbers are longitude in degrees and tenths.

Position 60 degree isotherm	Position 66 degree isotherm
4781300	3551300
4841272	3551283
4601252	3341265
4301260	3431255
4001253	3191250
3851244	3071225
3731241	3041200
3711225	3241178
	3361183
	3391194

Word summary:

Fall cooling has commenced in Washington offshore region and south to Guadalupe offshore waters. Sixty degree isotherm has moved offshore 60-100 miles Columbia River south to San Francisco. Best fishing expected west of this line and south to Davidson Seamount next 15 days." (End of transmission)

This message, when decoded and plotted as below, provides the fisherman at sea with a current analysis of the 60°-66° F. temperature zone (from which more than two-thirds of the total Pacific Coast albacore landings have been produced in recent years). The word summary gives the Tuna Resources Laboratory staff's best estimate of what is expected to happen in the succeeding 15-day period.

To make the advisory broadcast fully effective, the Tuna Resources Laboratory requires timely information from all sources at sea and ashore. To provide a medium for communication of oceanographic and current fishing data, Radio Station WWD will operate on the following frequencies and scheduled times:

Voice only	Telegraph only
4,415.8 kcs	8,698 kcs
8,805.6 kcs	12,871 kcs
12,403.5 kcs	17,105 kcs
16,533.5 kcs	22,419 kcs

Hours of Operation: Unlimited as requested, normally 0800-0100 local time weekdays, 1700-0100 weekends and holidays.

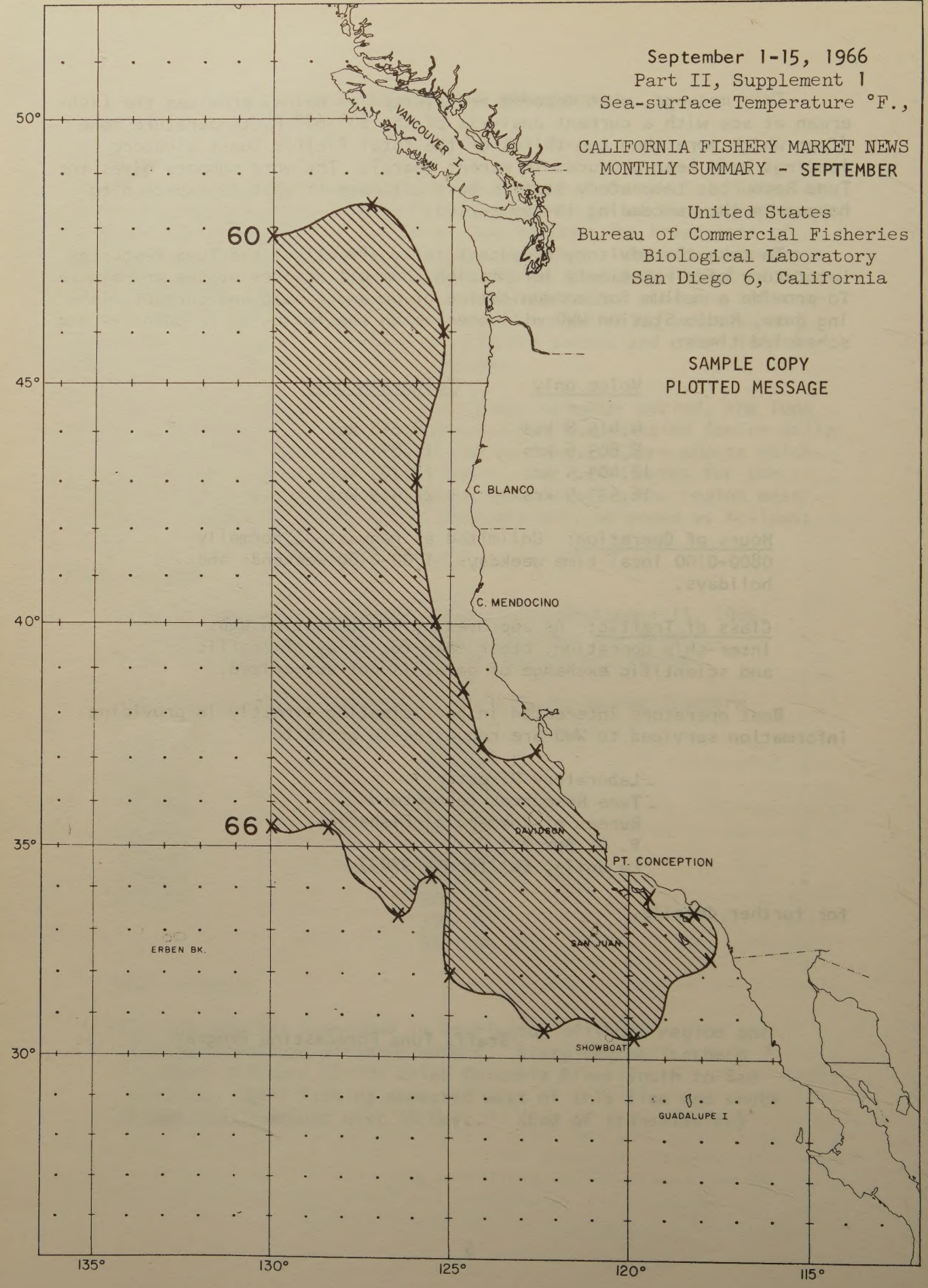
Class of Traffic: As approved by Radio Station WWD. Inter-ship operation, other than for relay of traffic and scientific exchange of data, is not authorized.

Boat operators interested in participating directly in providing information serviced to WWD are requested to write to

Laboratory Director
Tuna Resources Laboratory
Bureau of Commercial Fisheries
P. O. Box 271
La Jolla, California 92037

for further details.

Staff, Tuna Forecasting Program


September 1-15, 1966
Part II, Supplement 1
Sea-surface Temperature °F.,
CALIFORNIA FISHERY MARKET NEWS
MONTHLY SUMMARY - SEPTEMBER
United States
Bureau of Commercial Fisheries
Biological Laboratory
San Diego 6, California
SAMPLE COPY
PLOTTED MESSAGE
VANCOUVER I
60
C. BLANCO
C. MENDOCINO
66
DAVIDSON
PT. CONCEPTION
ERBEN BK.
SAN JUAN
SHOWBOAT
GUADALUPE I
50°
45°
40°
35°
30°
135°
130°
125°
120°
115°

BUREAU OF COMMERCIAL FISHERIES AND NAVY ON LINE

Commencing June 15, the Tuna Resources Laboratory, La Jolla, will be placed "on line" with the computer network of the U.S. Naval Weather Service Fleet Numerical Weather Facility, Monterey, California.

In exchange for synoptic ocean thermal structure (BATHY) data received at the Tuna Resources Laboratory and forwarded to Monterey, the Fleet Numerical Weather Facility will make available to the fishing and research community their portfolio of unclassified weather and oceanographic advisory materials on a daily basis. Data forwarded to Monterey are processed by computer and returned via Dataphone relay at 2,000 bits per second. These analyses are plotted automatically by special equipment, and pertinent materials will be summarized by our staff for inclusion in the daily albacore fishery information broadcasts. Thus, fishermen at sea for the first time will be able to realize benefit of the "computer age" and make good use of timely oceanographic data analyzed routinely by the Naval Weather Service.

Vessels engaged in fishing, research, and commercial operations are participating in a growing synoptic oceanographic observation effort. Data collected by cooperating ships are being used by the Fleet Numerical Weather Facility to monitor the oceanic environment on a synoptic scale for the first time in what may be as large a program in the future as the present international weather observation system. Vessel operators who are interested in participating in the BATHY and fishing information exchange programs should write to the Laboratory Director for information.

DATA COVERAGE OFF SOUTH AMERICA EXPANDED

Agencies and persons interested in sea temperature conditions off the west coast of South America will observe much more detailed coverage on this month's chart than at any time in the past. Through the cooperation of Dr. I. W. Lane, the W. R. Grace Company is providing sea surface temperature observations taken by Grace Line ships plying the South American west coast trade routes.

Further cooperative efforts can improve upon the May, 1966 data distribution. Persons and agencies having knowledge of shipping trade routes transiting areas now largely devoid of information (see Fig. 4) are requested to write to the Laboratory Director for further details.

SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN

MAY 1966

Acknowledgments

The following organizations and stations contributed data for the May 1966 charts:

U.S. Bureau of Commercial Fisheries Exploratory Fishing and Gear Research Base, Seattle, Washington
U.S. Bureau of Commercial Fisheries Biological Laboratories, La Jolla, California; Honolulu, Hawaii; and Seattle, Washington
U.S. Weather Bureau, San Diego, California
U.S. Naval Communication Station Balboa, Fort Amador, Canal Zone
U.S. Naval Weather Service, Fleet Numerical Weather Facility, Monterey, California
U.S. Weather Bureau Port Meteorological Office, Cristobal, Canal Zone
California Department of Fish and Game, R/V N. B. Scofield
Guadalupe Island, Coronado Island, Ensenada, Cedros Island and Puerto Cortes by Pedro Mercado of the Universidad Autonoma de Baja California, Ensenada, Mexico
Hopkins Marine Station, Pacific Grove, California by J. P. Balesteri
Instituto Hidrografico de La Armada, Valparaiso, Chile by M. Arancibia aboard B. E. Esmeralda
Inter-American Geodetic Survey by David Ortega at Manzanillo, Mexico; Rene Cortes at Salina Cruz, Mexico; L. A. Peren at Pt. Armuelles, Panama; V. E. Castillo at Tumaco, Colombia; S. Valenzuela at La Libertad, Ecuador; C. Arroyo, E. Guerrero and V. Huatay at Talara, Peru; J. Cardenas at San Juna, Peru
Inter-American Tropical Tuna Commission, La Jolla and Terminal Island, California
Kelco Company, San Diego, California
Pacific Oceanographic Group, Nanaimo, British Columbia, by H. J. Hollister from observations by T. Collins at Quatsino Lightstation; W. R. Raithby at Cape St. James Light; O. A. Edwards at Amphitrite Point Light; G. C. Wilkes at Langara Island Light
Scripps Institution of Oceanography, La Jolla, California by Margaret Robinson and Hans Klein
W. R. Grace and Company, New York, New York by Dr. I. William Lane
Ships Royal Pacific and West Point

Charts

Figure 1.--Mean sea surface temperatures (°F) derived from approximately 8000 observations. Squares show temperatures at weather ship stations. Numerals on shore are temperatures at coastal and lightship stations.

Figure 2.--Deviation of sea surface temperatures (°F) from long term charts of H.O. 225. Hatched areas are colder in 1966.

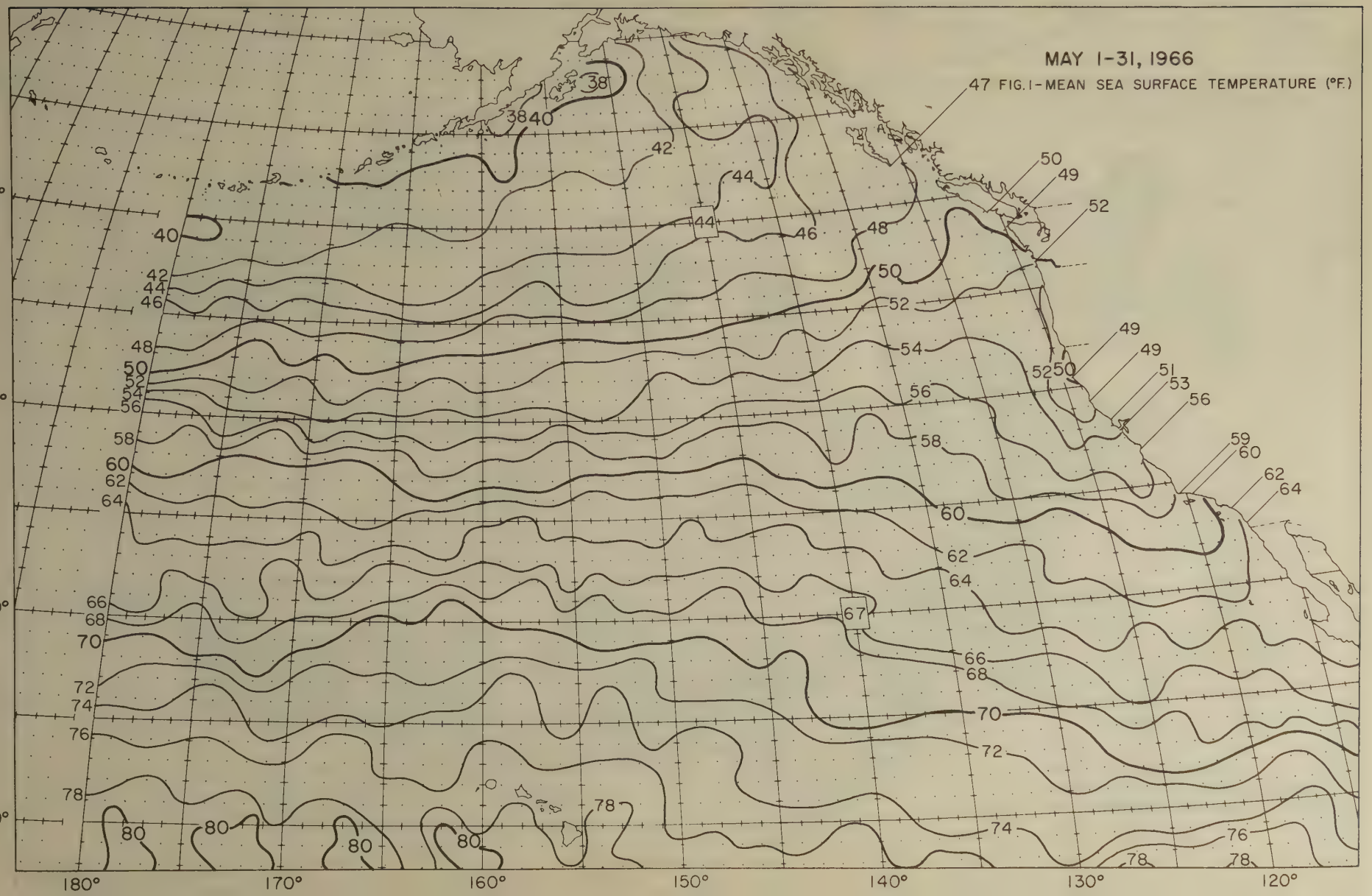
Figure 3.--Deviation of sea surface temperatures (°F) from those of May 1965. Hatched areas are colder in 1966.

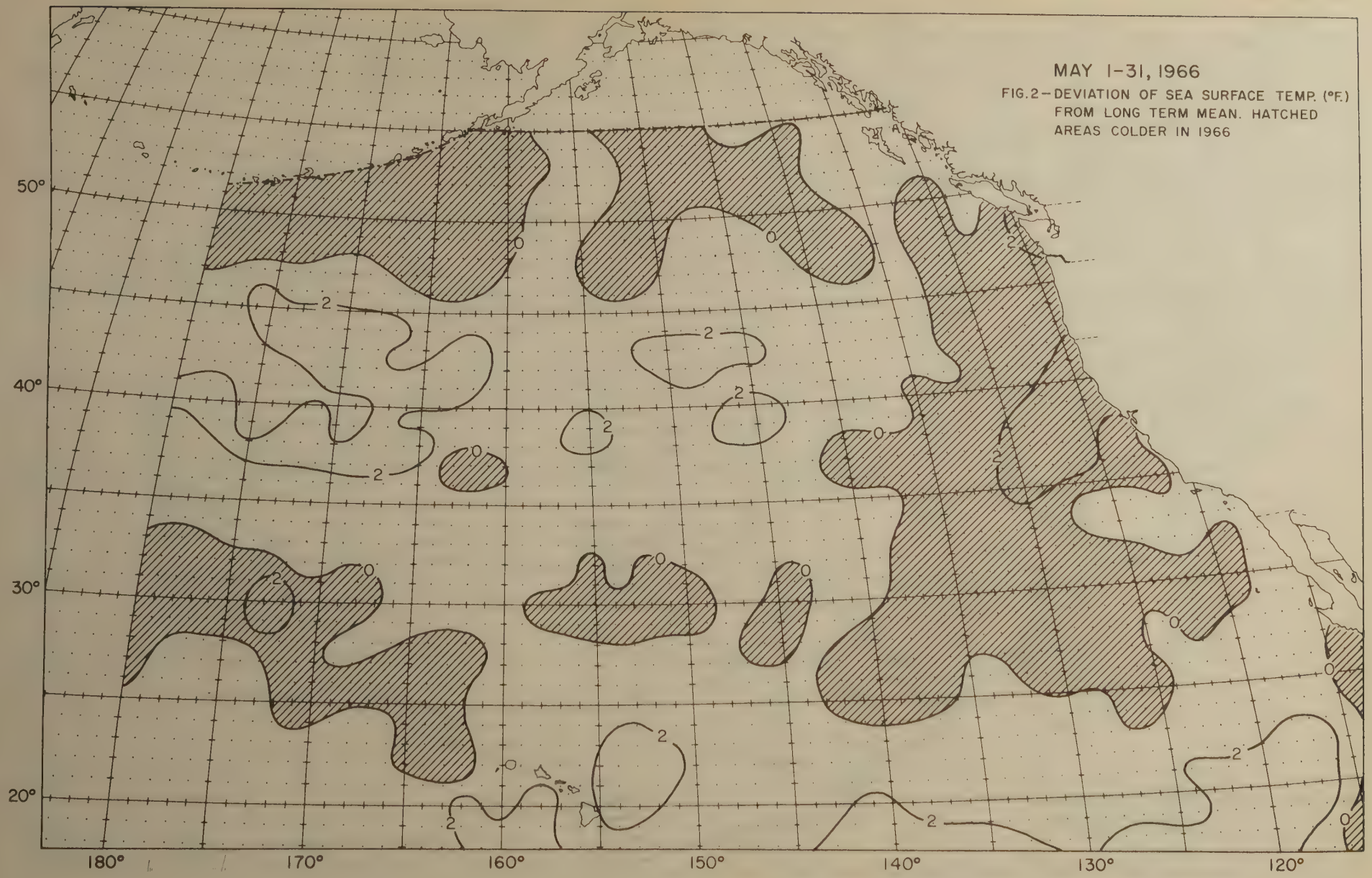
Figure 4.--Sea surface temperatures (°F) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal stations.

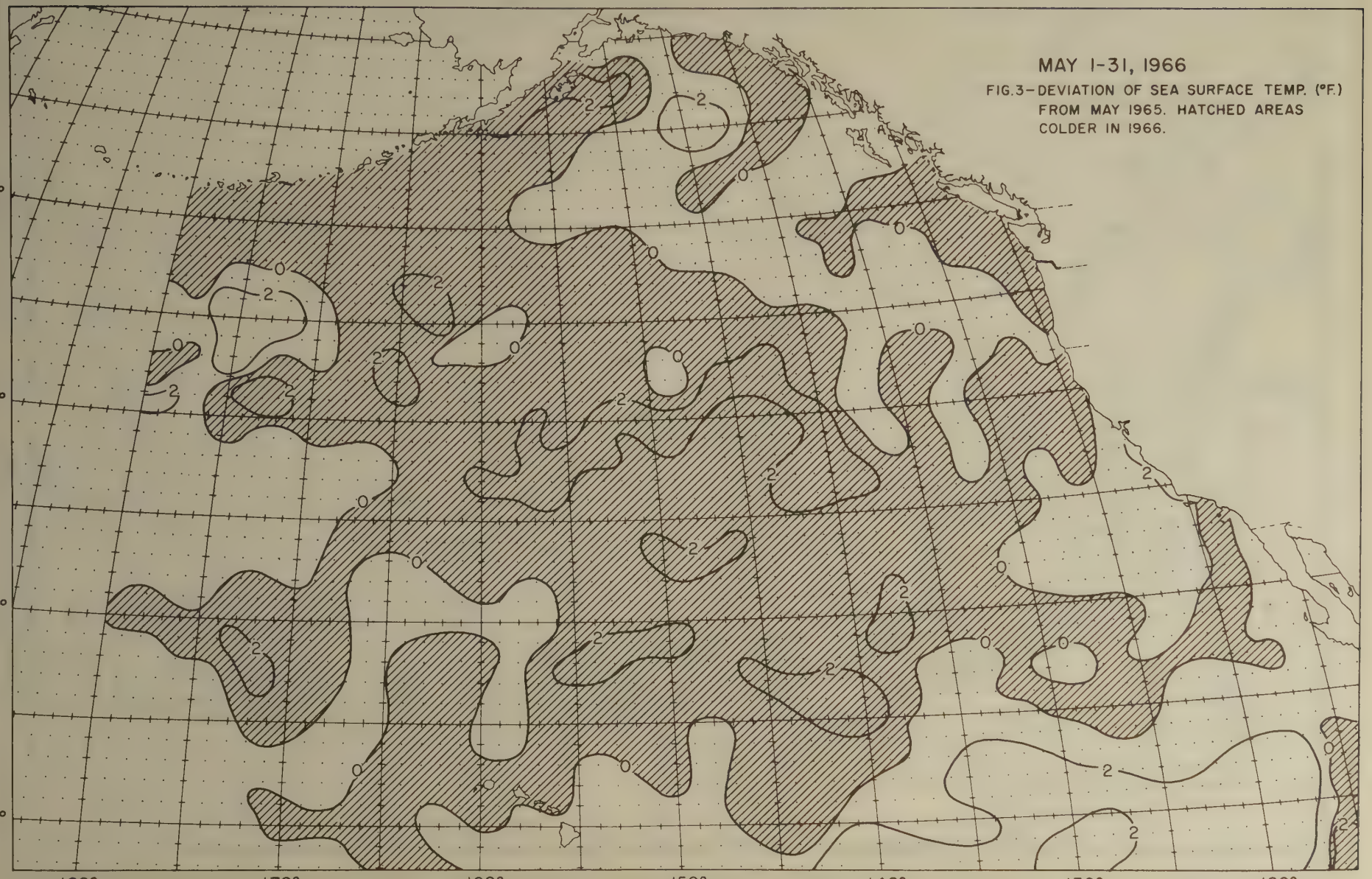
Figure 5.--Deviation of sea surface temperatures (°F) May 1966-May 1965 by 1-degree squares. Shaded areas are colder in 1966.

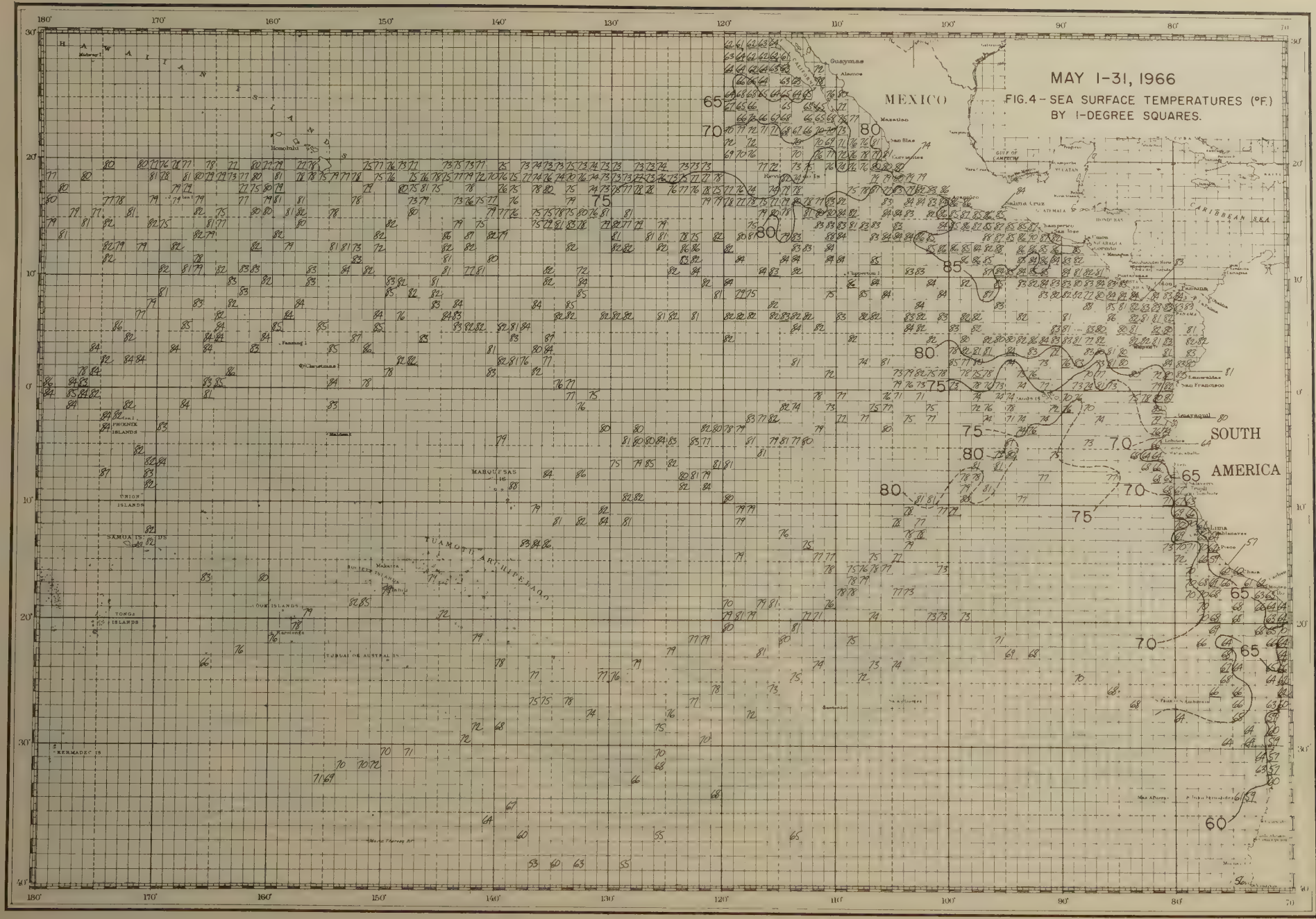
Figure 6.--Deviation of sea surface temperatures (°F) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas are colder in 1966.

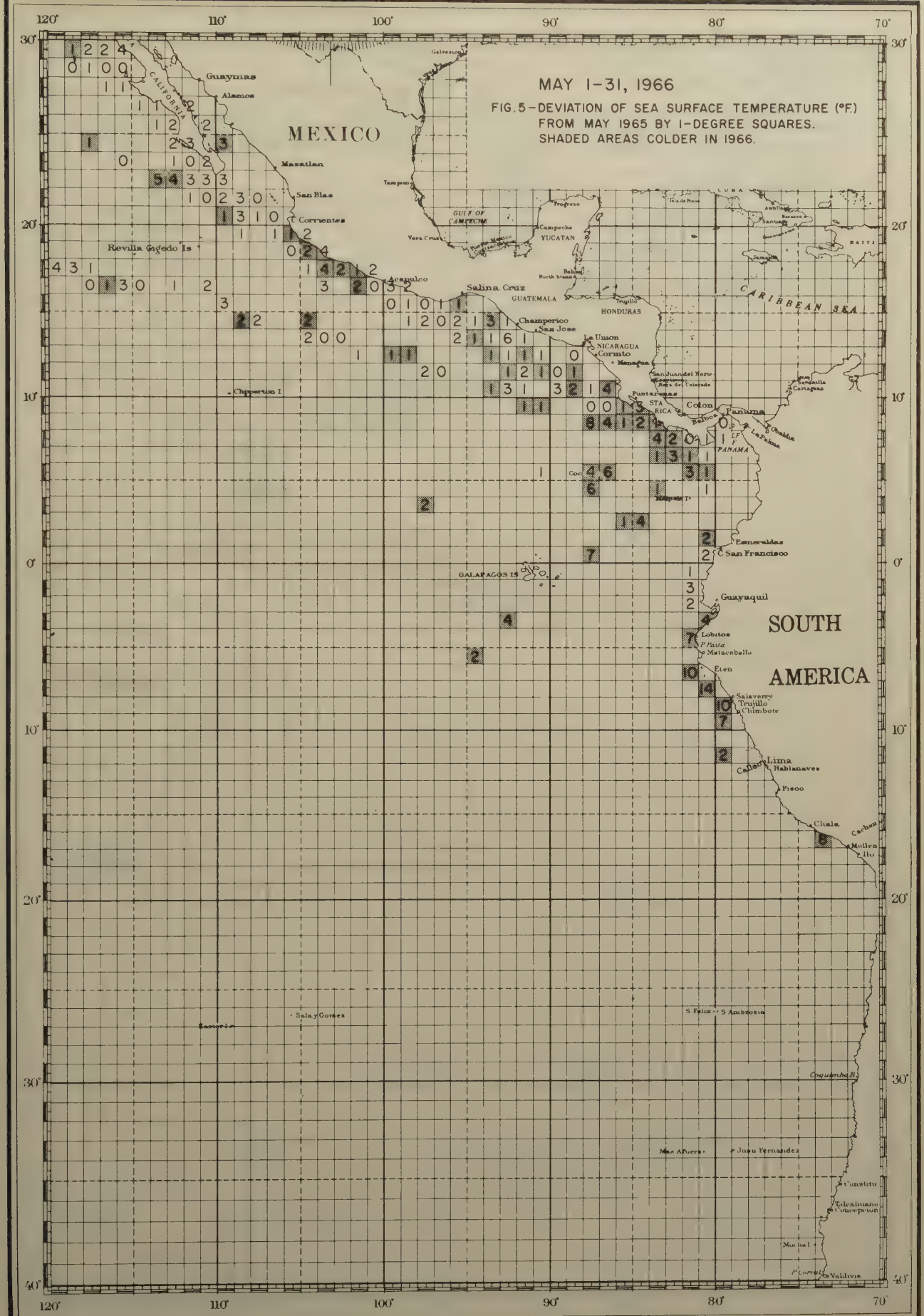
James A. Renner
Fishery Biologist (General)

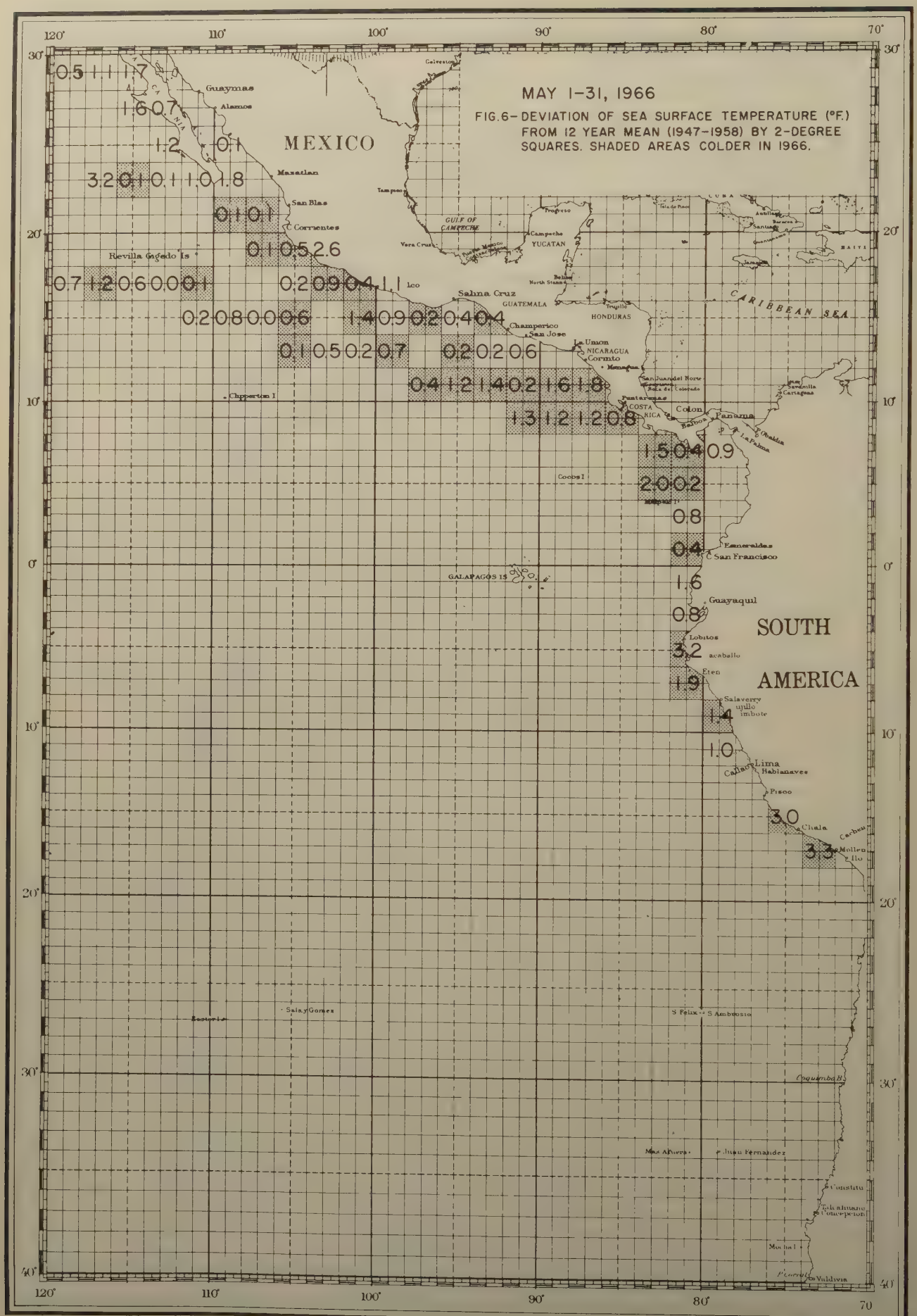

MAY 1-31, 1966
47 FIG. 1 - MEAN SEA SURFACE TEMPERATURE (°F.)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

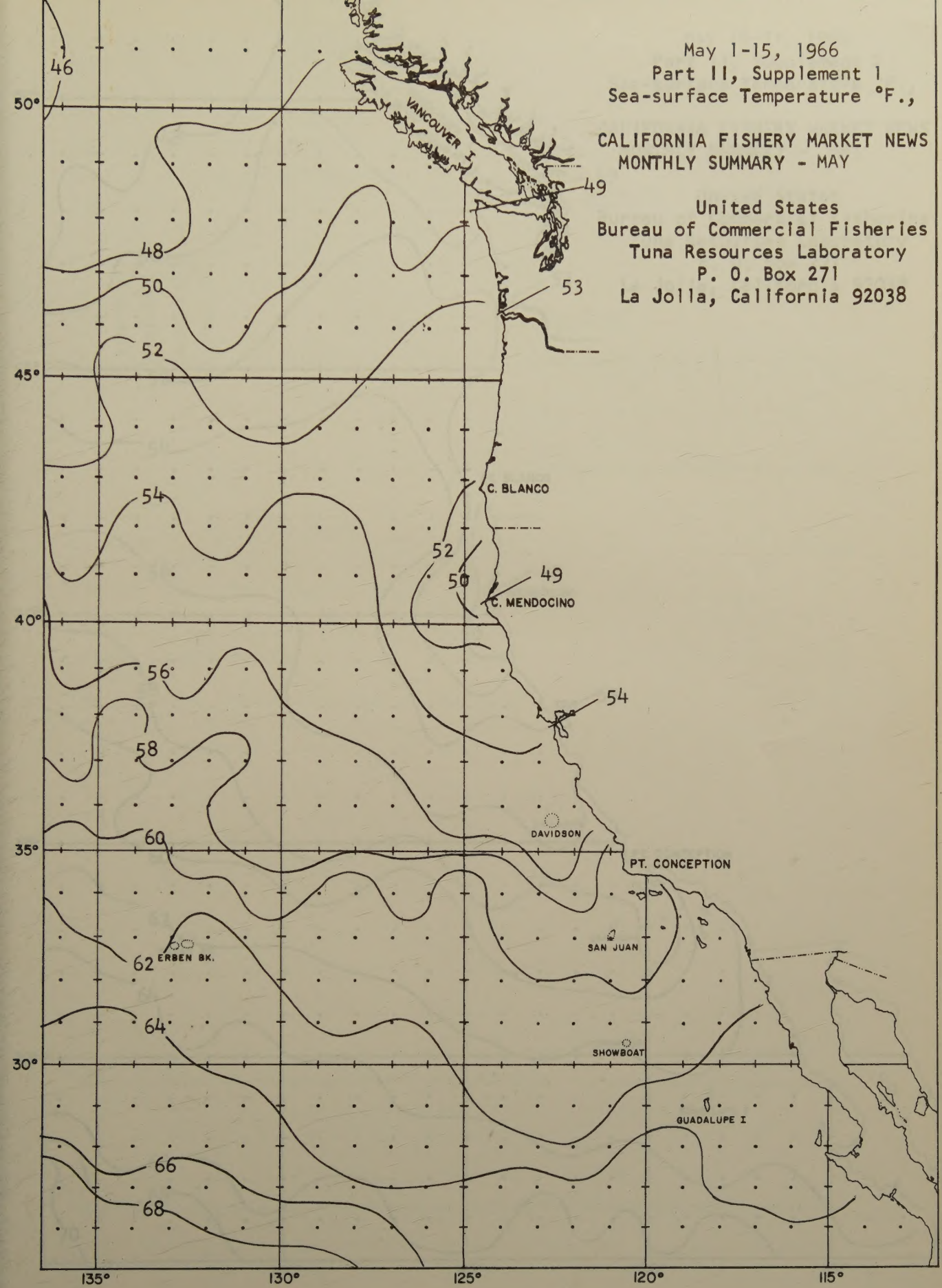

MAY 1-31, 1966
FIG. 2 – DEVIATION OF SEA SURFACE TEMP. (°F.) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1966
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2


MAY 1-31, 1966
FIG.3-DEVIATION OF SEA SURFACE TEMP. (°F.) FROM MAY 1965. HATCHED AREAS COLDER IN 1966.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


MAY 1-31, 1966
FIG. 4 - SEA SURFACE TEMPERATURES (°F.)
BY 1-DEGREE SQUARES.
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
HAWAIIAN ISLANDS
Honolulu
PHOENIX ISLANDS
UNION ISLANDS
SAMOA IS.
TUAMOTU ARCHIPELAGO
TONGA ISLANDS
OUR ISLANDS
TUBUAI OR AUSTRAL IS.
MARQUESAS IS.
Guaymas
Acapulco
San Blas
Salina Cruz
Panama
Tumaco
Guayaquil
Lima
Callao
Pisco
Arica
San Francisco
Manzanillo
Puerto Vallarta
Mazatlan
Easter I.
Christmas I.
Fanning I.
Malden I.
Palmyra I.
Johnston I.
Howland I.
Baker I.
Makatea
Rapa
Raivavae
Rurutu
Rimatara
Rarotonga
Penrhyn
Nassau
Bermuda
Juan Fernandez Is.
Wake Pkwy Atl


MAY 1-31, 1966
FIG. 5 - DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM MAY 1965 BY 1-DEGREE SQUARES. SHADED AREAS COLDER IN 1966.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
PANAMA
YUCATAN
GULF OF CAMPECHE
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Acapulco
Salina Cruz
Champerico
San Jose
La Union
Cormito
Managua
Punta Arenas
Colon
Panama
Chiperton I
Esmeraldas
San Francisco
Guayaquil
Lobitos
Talara
Matacabullo
Eten
Salaverry
Trujillo
Chimbote
Callao
Lima
Pisco
Chala
Mollendo
Arica
Iquique
Antofagasta
Juan Fernandez
Constitucion
Talcahuano
Concepcion
Valdivia
Progreso
Campeche
Vera Cruz
Tampico
Galveston
Trinidad
Jamaica
Haiti
Cuba
Cartagena
Barranquilla
Aruba
Curacao
Bahia
Callao


MAY 1–31, 1966
FIG.6– DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM 12 YEAR MEAN (1947–1958) BY 2-DEGREE SQUARES. SHADED AREAS COLDER IN 1966.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
CUBA
HAITI
YUCATAN
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Salina Cruz
Champerico
San Jose
Corinto
Cocos I
Esmeraldas
San Francisco
Guayaquil
Lobitos
Eten
Salaverry
Lima
Callao
Pisco
Chala
Mollendo
Ilo
Arica
Iquique
Antofagasta
Coquimbo
Valparaiso
Talcahuano
Concepcion
Corral
Valdivia
Juan Fernandez
Sala y Gomez
S Felix
S Ambrosio
Tampico
Progreso
Vera Cruz
Galveston
Trujillo
Colon
Panama
Cartagena
Barranquilla
Maracaibo
Aruba
Curacao
Santiago
Guantanamo
Tela de Pisco
Barcos
Asableya
Jamaica
Belize
North Staan
Puerto Mexico
Coatzacoalcos
Tuxpan
Acapulco
Manzanillo
Puerto Vallarta
Mazatlan
Topolobampo
Guaymas
Ensenada
San Diego
Los Angeles
San Francisco
Seattle
Vancouver
Juneau
Sitka
Kodiak
Dutch Harbor
Nome
Point Barrow
Prudhoe Bay
Tuktoyaktuk
Coppermine
Cape Parry
Cambridge Bay
Resolute
Thule
Godthaab
Frobisher Bay
Churchill
Winnipeg
Duluth
Minneapolis
Chicago
Detroit
Toronto
Montreal
Quebec
Halifax
Sydney
St Johns
Goose Bay
Labrador
Hudson Bay
Hudson Strait
Baffin Island
Ellesmere Island
Greenland
Iceland
Bermuda
Nassau
Miami
Key West
Tampa
Jacksonville
Charleston
Norfolk
Atlantic City
New York
Boston
Portland
Bangor
St John
Yarmouth
Sable I
Cape Hatteras
Cape Fear
Cape Lookout
Cape Kennedy
Cape Canaveral
Cape Sable
Cape Race
Cape Farewell
Cape Desolation
Cape Dyer
Cape Chidley
Cape Wrangell
Cape Lisburne
Cape Thompson
Cape Prince of Wales
Cape Navarin
Cape Olyutorsk
Cape Lopatka
Cape Erimo
Cape Soya
Cape Shiriya
Cape Nemuro
Cape Inubo
Cape Nojima
Cape Omaezaki
Cape Shionomisaki
Cape Ashizuri
Cape Sata
Cape Ryazan
Cape Kamchatka
Cape Lopatka
Cape Kronotsky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GUADALUPE I
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49
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58
60
62
64
66
68
50°
45°
40°
35°
30°
135°
130°
125°
120°
115°

May 16-31, 1966
Part II, Supplement 2
Sea-surface Temperature °F.,

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